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ENTOMOLOGICAL NEWS

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A Note on the Genus Lucernuta Castelnau and a New Species. (Coleoptera; Lampyridae)

By FRANK A. MCDERMOTT, *Wilmington, Delaware*

Kirby (1818) described two new lampyrids from Brazil as *Lampyris illigeri* and *L. savignii,* and although he said they were related, the descriptions strongly suggest that they are not congeneric. In 1833 Castelnau erected *Lucernuta* as a division of his supergenus *Photinus,* and listed *fenestrata* Germar, *thoracicus* G. A. Oliv., *laticornis* Fabr., *discoidalis* Cast., and *bicolor* Fabr., as species. Of these, *thoracicus, laticornis* (= *atra* G. A. Oliv.), and *discoidalis* are now listed in *Lucidota,* and *bicolor* in *Pyrocoelia* (E. Olivier, 1907, 1910, 1911). Motschulsky (1853a) erected the genera *Lychnocrepis* and *Strongylomorphus,* with species now listed in *Pyrocoelia;* under *Lucernuta* he gave *fenestrata* as the type (1853b, c) and mentioned *savignii* as belonging in this genus. Lacordaire (1857) gives a more complete description of *Lucernuta* than that of Castelnau, lists *fenestrata,* and suggests that it may be a variety of *savignii.* Neither Motschulsky nor Lacordaire mention *illigeri* under *Lucernuta,* but the former (1854d) suggests that it may be *Megalophthalmus.* Lacordaire's description of *Lucernuta* differs but little from that of *Cratomorphus,* except for the longer antennae of the former.

Gorham (1880, p. 15) gives only *fenestrata* under *Lucernuta,* but (p. 91) established the genus *Pyrocoelia* for the somewhat similar Asian species known to him, and including *bicolor* Fabr., but not Motschulsky's species of *Strongylomorphus* and *Lychnocrepis.* E. Olivier (1907; 1910) included *Pyrocoelia* under *Lucernuta* and added Motschulsky's species (although

Gorham said his *Pyrocoelia* was not congeneric with any of Motschulsky's divisions), but in 1911a he gave a distinction between *Lucernuta* and *Pyrocoelia* which he maintained in his revision of the family (1911b). It is odd that in his 1910 list, Olivier gives *fenestrata* as a synonym of *illigeri* instead of *savignii;* if a synonym of either, it must be of the latter.

Through the courtesy of the British Museum (Natural History) I have had an opportunity to examine specimens of both of Kirby's species which had been compared with the types; both were males. As a result of this examination it is evident that *illigeri* actually belongs in *Cladodes,* and thus becomes *Cladodes illigeri* (Kirby). *L. savignii* is very close to *Cratomorphus,* and if it were a newly-discovered species would probably have been so classified. It is a considerably larger insect (20 mm. long) than *L. hammari* or the other two recent species listed below, and with a distribution of the luminous tissue resembling that of some species of *Cratomorphus;* it has, however, the broad body form and relatively long antennae of *Lucernuta.* As noted by Lacordaire, *Cratomorphus* is divisible into groups, and there might be doubts as to whether *Lucernuta* is really different from *Cratomorphus.* For the present it seems best to allow *Lucernuta* to stand as a valid genus. Whether or not *fenestrata* is a synonym of *savignii* cannot be decided; *savignii* has priority over *fenestrata* and while the descriptions by Kirby and Germar are not directly comparable, Lacordaire's suggestion of varietal difference seems plausible.

Pic (1930) described a new species, *Lucernuta minuta,* and I (1959) added *L. hammari.* Another new species has recently been received by me and is described below. The accompanying figure shows its considerable resemblance to *L. hammari.* A picture of *L. savignii* is shown for comparison.

Lucernuta paraguayensis n. sp.

Type locality, Honehan, PARAGUAY; December 1957; no collector's name.

Material examined, two males, one slightly smaller than the other.

Type in the collection of the U. S. National Museum, Washington, D. C.

Size, 13.45 mm. long by 6.2 mm. broad. Outline broadly elliptical.

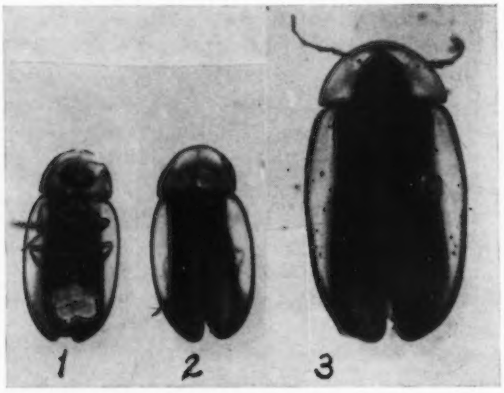

FIG. 1. *Lucernuta paraguayensis;* venter of paratype. Actual length 13.2 mm.

FIG. 2. *Lucernuta paraguayensis,* dorsum of type. Actual length 13.45 mm.

FIG. 3. *Lucernuta savignii;* dorsum. Actual length 21.1 mm. British Museum specimen.

Pronotum 3.75 mm. long by 4.85 mm. broad, semi-elliptical; posterior angles obtuse, rounded; low median longitudinal carina from base to apex; brownish inflated area over eyes, with two small transparent spots near the apical margin; lateral extensions flat, pale brownish, closely punctate; disk convex, finely punctulate; extreme edges narrowly brown and slightly reflexed in apical third; short yellow pubescence, especially noticeable on the sides of the disk; an irregularly pentagonal or subquadrate orange-red spot in median third and basal half of pronotum.

Scutellum black, glistening, apex acute. Mesonotal plates dull dark reddish brown.

Elytra 9.7 mm. long by 3.1 mm. broad, widest at about basal

third, narrowing slightly toward apices; lateral margins pale, translucent, somewhat deflexed, *ca.* 1.0 mm. wide at basal third, narrowing posteriorly and becoming indistinct at about apical fourth; extreme lateral edges brown; convex over body, coarsely rugose-punctate; color over body translucent brown but appearing nearly black over wings; primary pubescence short, pale, not dense; secondary pubescence very short and dense.

Frons dark brown, very concave; eyes very large, *ca.* 2.25 mm. across in frontal aspect, and 0.45 mm. between them above antennal sockets; not contiguous beneath. Mandibles very small, directed postero-ventrally as in *L. hammari.*

Antennae 4.5 mm. long, approximately $\frac{1}{3}$ body length; brown, hairy, tapering, slightly compressed, not serrate; 1st article long, 2nd very short, 3 to 10 diminishing in width and slightly in length; sockets contiguous.

Prosternum pink, margin sinuate; mesosternum reddish brown; metasternum dark reddish brown.

Pygidium trilobed, the median lobe short and rounded, the lateral lobes longer and acute.

Ventral segments 2 to 5 dark brown, 5 with a narrow pale posterior edge. 6 and 7 entirely luminous and 2 times as long as the 5th; somewhat emarginate medially. 8 short and narrow, deeply emarginate. 9 ogival, dark brown. Tergites 5, 6, and 7 have short, posteriorly directed, lateral lobes.

Legs brown; claws simple.

Aedeagus like that of *L. hammari.*

One paratype, ♂, same locality; 13.2 mm. long and proportionately slightly narrower; ventral segment 4 medially pale. In the collection of the Academy of Natural Sciences of Philadelphia.

In my description of *L. hammari* the abdominal spiracles were noted as "dorsal"; this was a mistake, as they are actually located on the antero-lateral corners of the ventral segments, as they are also in *L. paraguayensis.* As has been found in several species of *Cratomorphus,* they are hidden under the posterior edge of the preceding segment and are thus not seen in direct examination of the ventral aspect.

At present, the genus *Lucernuta* embraces the following species: *fenestrata* Germar, *hammari* McD., *minuta* Pic, *paraguayensis* McD., and *savignii* Kirby.

The courtesy of the British Museum (Natural History), through Miss C. M. F. von Hayek, in affording me an opportunity to examine the specimens of Kirby's species is very much appreciated.

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A Neglected Diagnostic Character of the Apoidea (Hymenoptera)

By U. N. LANHAM, Saline Valley Farms, Saline, Michigan

Largely on the basis of thoracic structure, most writers have considered the bees (superfamily Apoidea) as most closely related to the digger wasps (superfamily Sphecoidea). An important difference between the two superfamilies is that the bees are specialized for gathering pollen, but since the males and the numerous parasitic bees lack the attendant pollen collecting structures, textbook keys for identification have been forced to rely on two rather obscure characters to differentiate the two groups: the few or many compound or branched hairs that are said to be invariably present somewhere on the body of the bee, and the broadened hind basitarsis. Sphecoid wasps have all the body hairs simple and have the hind basitarsis slender.

Some years ago I was surprised to find, while examining some sphecoid wasps, that the hind tibia of these insects bears a strigil or cleaning apparatus which is analagous in structure to that on the front leg of most Hymenoptera—the inner tibial spur opposed to a concave brush of hairs on the bases of the first tarsal segment. This posterior strigil does not, so far as I know, occur in the Apoidea. Since this difference does not appear to have been mentioned in the standard English texts in entomology, it seems worthwhile to point it out here.

This structural difference between the bees and sphecoid wasps has long been known to European hymenopterists. Bischoff (1927, p. 15) gives this diagnosis:

"*Sphecidae* (Grabwespen) [= Sphecoidea]. . . . Hinterbeine mit Putzapparat. . . .
Apidae (Bienen) [Apoidea]. . . . Putzapparat an den Hinterbeinen fehlt."

Gennerich (1922) gives an elaborate discussion of the function and structure of the strigils of the Hymenoptera.

It may be that the presence or absence of the strigil on the hind leg is of phylogenetic significance. Börner (1919) uses the character to divide the aculeate Hymenoptera into two subsections:

1. Haplocnemata (cleaning apparatus on the front legs only), including the ants, scolioid wasps, and the bees.
2. Diplocnemata (cleaning apparatus on both front and hind legs), including the sphecoids, psammocharids, and vespids.

His minority view that the bees are more closely related to the scolioid wasps than to the sphecoids should be taken into account in any investigation of the ancestry of bees.

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Concerning the Aberrant Genus Nothobius, with a Redescription of its Type-Species. (Chilopoda: Geophilomorpha: Himantariidae)

By Ralph E. Crabill, Jr., U. S. National Museum, Smithsonian Institution, Washington, D. C.

Within the relatively rich himantariid fauna inhabiting California and adjacent areas, there are no more distinctive genera than *Gosothrix* and *Nothobius*. Represented by a single known species each, they alone among all described genera are characterized by the possession of an unguiform pretarsus upon each ultimate leg: no other himantariid genus has an ultimate pretarsus. *Gosothrix insulanus* Chamberlin, the type species, known only from Pond Island in the Gulf of California, is readily distinguished by its lack of major paratergites and of sternital porefields; in *californicus* Cook, the type-species of *Nothobius*, both are present and conspicuous. The present paper will attempt to resolve the long-standing nomenclatural confusion surrounding *californicus* and will present for the first time a sufficiently detailed description of the species with a discussion of variation.

The original proposal of the new genus and species, *Nothobius californicus*, was presented in 1899 by O. F. Cook (p. 303, footnote). Having recognized that Selivanov's 1881 redescription of *Chomatobius mexicanus* (Saussure) was based upon an erroneous identification, he also saw that the Californian specimens which Selivanov had referred to *C. mexicanus*, an oryid, actually represented an unnamed himantariid genus and species. This new form he named and briefly characterized as follows: "This latter [the Selivanov material] evidently represents a different generic type, for which the new name *Nothobius californicus* is proposed. It is distinct from *Chomatobius* in having a row of small suprascutella [major paratergites], in having the ventral pores in rounded areas, the last pleurae [coxopleura] with numerous small pores, and the anal legs with a distinct claw . . . Seliwanoff's [*sic*] description is contained in the paper entitled 'Geophilidae Mus. Imp. Akademii Nauk,' 1881, p. 24, pl. II, figs. 9–16."

Thereafter the first person to see and then discuss specimens of this remarkable species was R. V. Chamberlin. In 1912 (p. 669) he reported that he had seen Californian material from Stanford, Claremont, and Los Angeles. He presented a short generic and a species diagnosis—which leave no doubt that he was dealing with *Nothobius*—and called the species *Notobius taeniopsis* (Wood).

Notobius is of course a misspelling for *Nothobius*. H. C. Wood's description of *Strigamia taeniopsis* in 1862 (p. 48) is in my opinion inadequate to warrant a generic, much less a specific, identification. We can be sure only that it is a himantariid and that it was collected by LeConte either in Georgia or in California (and probably in the latter), but since no type specimen is known to be extant, it would be most difficult under these circumstances to say to which of the numerous western himantariid genera and species *taeniopsis* is referable. All we know of it is contained in the original description, which is insufficient even for generic assignment. I propose that the name be set aside and that it be considered provisionally as a *species inquirenda* of uncertain generic assignment.

To conclude the historical résumé, in 1929 Attems questioned the inclusion of *Gosothrix* and *Nothobius* in Himantariidae on the grounds that there were probably no true himantariids with ultimate leg pretarsi. He also asserted that the Cook name was a *nomen nudum*. On the contrary, it is a true but aberrant himantariid, and its name is quite valid. Although the name was proposed rather casually in a footnote, the species was characterized, and in addition Cook clearly referred to Selivanov's detailed characterization of 1881 as being descriptive of the new species.

For its era Selivanov's written description is remarkably accurate and full, and apart from the text, his clear and detailed figures make confident identification easy. The distinctive rear legs with their claws and coxopleura, the typical himantariid mandible, the prosternum with its complete sclerotic lines, the conspicuous major and intercalary paratergites, the tiny maxillary lappets, the peculiar labrum—all are very clearly figured,

and in addition many are described in the text. In the text he stated that his description was based upon two females and one male, all from Sacramento, California, under date 1846. The females were 55 and 155 mm. long and had 129 and 132 [*sic*] pairs of legs. The male, 76 mm. long, had 119 pairs of legs.

Most of the specimens upon which the present redescription is based were collected by L. M. Smith and R. O. Schuster in the general area between Lake Tahoe and Sacramento County, that is, on the lower western slopes of the Sierra Nevada Mountains. Subsequently they were given to Mr. R. L. Hoffman who in turn generously presented them to me: all are now in the collection of the U. S. National Museum.

Nothobius californicus Cook

Plesiotype, female: California, Placer County, 4 miles west of Newcastle; L. M. Smith and R. O. Schuster, collectors; April 15, 1958. In U. S. National Museum Myriapod Collection, number 2566.

General Description. Length, 120 mm. Pedal segments, 153. Color: anterior two-thirds of body nearly uniformly sordid creamy yellow; last third, excluding final 5–10 segments, sordid brown as if discolored. Shape: markedly flattened, ribbon-like; at each end there are 5–10 segments which as a group are slightly attenuate.

Antennae: length (expanded in Hoyer's mountant) 3.7 mm. antennae separated basally. 2nd and 3rd articles very slightly flattened, those remaining round in cross-section. Distally very slightly attenuate. Each article but the first longer than wide. From dorsal aspect becoming densely setose on article 5 or 6. Ultimate article long and conical, inner and outer surfaces each with an elliptical patch of densely packed special sensory setae. Cephalic Plate. Greatest width, 1.5 mm.; greatest length, 1.2 mm.; thus somewhat broader than long. Shape: anteromedially pointed; sides strongly excurved; posterior margin straight, somewhat overlapping basal plate. Prebasal plate concealed. Without a frontal suture or other sulci. Setae sparse, minute. Clypeus (fig. 13). Paraclypeal sutures present and

complete but membranous and very vague; transbuccal sutures absent. Clypeal areas and plagulae absent. Posterior clypeal margin darker in color and more strongly sclerotic. Midclypeal setae in a broad, irregular transverse patch; all short and robust. Prelabral setae 6 in number, in a transverse line. Each bucca with a strongly sclerotic anteromesal border. LABRUM (fig. 13). Separated from clypeus by a distinct membranous strip. Medially deeply embayed, the two halves narrowly but distinctly joined; centrally with 4 strong, well-pigmented teeth, these flanked by paler, weaker and more sharply pointed teeth; total dentition 6 + 4 or 5. MANDIBLE. Dentate lamella strong, with curved blunt teeth, 9 right, 7 left, on each mandible the two dorsal-most paler and weaker; right with 8, left with 5 pectinate lamellae, each in addition with 1–2 rudimentary lamellae; the combteeth not expanding basally, apically blunt and apparently truncate or essentially so. FIRST MAXILLAE (fig. 4). Coxosternum weakly and indistinctly divided by a narrow midlongitudinal cleft; lappets absent. Telopodite articles very weakly separated; lappets rudimentary and concealed, apparently absent at lower magnifications. SECOND MAXILLAE (fig. 4). Coxosternum anteromedially deeply incised; postmaxillary sclerites present, well-sclerotized, small, typically elongate. Telopodite claw robust, with 2 stout basal spurs; distal two-thirds spoon-shaped and excavate, the dorsal and ventral edges not pectinate. PROSTERNUM (fig. 1). Sclerotic lines heavy, reaching condyles. Setae very sparse, minute.* PREHENSOR (fig. 1). Distomesal denticles entirely absent. Ungula long and robust, its somewhat flattened surface directed anterodorsally; when closed, the claws not surpassing front of head. Poison calyx tubular, very long; digitiform appendices clustered and numerous. Poison gland extending out of prehensor into prosternal segment; exact terminus of lower end unknown.

TERGITES. Without paramedian sulci, other grooves or depressions. Very sparsely, finely setose. Texture very finely

* Selivanov's figure of the prosternum shows a pair of anterior prosternal denticles which are probably artifacts. In each of my specimens there is a pair of subsurface dark areas in the anterior prosternal diastema. Under low power these could be misinterpreted as denticles.

granulate. PLEURITES (fig. 6). With prominent major paratergites visible approximately from the 55th through the 130th pedal segment. Primary and secondary intercalary paratergites present on nearly all segments. All spiracles essentially or perfectly round. Last right and left stigmopleurites completely fused with their tergite; all others free. LEGS (figs. 10, 11). Sparsely clothed with minute setae. Pretarsal major claws of rear fourth of body notably longer and broader than those of the more anterior legs; pretarsal accessory claws small, at most about a third as long as the major claw. STERNITES (figs. 2, 3). Each much broader than long and very sparsely clothed with tiny setae. Porefields: present on sternites 2 through the penult without interruption, each deeply yellow and pierced with numerous minute pores; on anterior body third transversely elliptical to reniform in shape, thereafter becoming smaller (relative to the sternite) and wider. Beginning on about sternite 45 and continuing through approximately the 75th there is a distinct, wide parasternital cleft between the lateral sternite margins and the adjacent subcoxal pleurites.

ULTIMATE PEDAL SEGMENT (figs. 5, 9). Pretergite fused with its pleurites, without lateral sutures. Tergite transversely rectangular, much broader than long, the sides diverging slightly posteriorly, the rear margin straight. Presternite broad, laterally bending under the anterolateral corners of the sternite; medially diastemate. Sternite much broader than greatest length; midlongitudinally with a shallow, short sulcus; sides very slightly incurved, posteriorly convergent; posterior margin deeply embayed. Coxopleuron: extending anteriorly well forward of rear margin of its segment; very sparsely setose; ventrally with two groups of clustered and cryptic pores which are contained in two concealed cavities; dorsally the majority of the pores are concealed in a hidden trench extending in a sinuous course into the penult pedal segment. Leg: not inflated; tarsus consisting of two articles and armed with a prominent, curved unguiform pretarsus; setae sparse and small. POSTPEDAL SEGMENTS (fig. 9). Female gonopods distinctly biarticulate, the terminal article small and knob-like, the basal articles fused with each other. Terminal pores absent.

Plesiotype, male: California, Sacramento County, Folsom Lake State Park, Horseshoe Bar Area; L. M. Smith and R. O. Schuster, collectors; April 15, 1958. In U. S. National Museum Myriapod Collection, number 2566.

The male agrees closely with the female, differing in the following important variant characters. (See figs. 7, 8, 12.) Length, 73 mm. Pedal segments, 169. Color, uniformly sordid creamy yellow. Labrum: only the two central teeth darker and strongly-developed; total dentition 5 + 5. First maxillary telopodite lappets, present on left, absent on right. Mandibles: left with 6 dentate lamellar teeth and with 6 pectinate lamellae; right with 8 dentate lamellar teeth and with 6 pectinate lamellae. Gonopods long, distinctly biarticulate, widely separated.

In the underlying chart are listed all of the specimens comprising this study, and following the chart a number of variant characters are discussed. Finally, drawing upon all of this information I present a tentative generic characterization and a synthetic description of the the type-species.

	Sex	Length	Legpairs	1st maxillary lappets	Last stigmopleurite
A	♀	110 mm.	163	O–O	F–F
B	♀	134 mm.	161	O–O	F–F
C*	♀	120 mm.	153	R–R	F–F
D	♀	61 mm.	161	O–O	F–F
E	♂	50 mm.	153	P–P	F–F
F	♀	58 mm.	163	R–R	F–F
G	♀	52 mm.	165	P–P	F–F
H*	♂	73 mm.	169	P–O	F–F
I	♀	49 mm.	143	P–P	F–D
J	♀	83 mm.	135	P–P	F–F
K	♂	52 mm.	153	R–O	F–F
L	♂	80 mm.	127	P–P	D–D
M	♀	91 mm.	127	O–O	F–F

CHART LEGEND. Under 1st maxillary lappets (of telopodites). O = absent entirely; P = present and approximately as shown in fig. 7; R = rudimentary, discernible but smaller than shown in above figure; e..g, R-O = left is rudimentary, right is absent.

Under last stigmopleurite: F = stigmopleurite fused with its tergite; D = stigmopleurite distinctly separated from its tergite; e.g., F-D = the left one is fused to, the right discrete from the tergite, or F-F = both are fused with tergite. An asterisk signifies a plesiotype.

LOCALITIES. All localities are in California. A–K, L. M. Smith and R. O. Schuster collectors; L–M, collector unknown. Placer County, 4 miles west of Newcastle: III.12.58, (A); IV.15.58, (B, C, D, F); III.21.58, (E). Sacramento County, Folsom Lake State Park, Horseshoe Bar Area: IV.15.58, (G, H). Amador County, 4 miles north of Ione: IV.25.58, (I). Sutter County, west side of Sutter Buttes: III.12.58, (J). Calaveras County, north of Murphys: III.5.58, (K). Placer County, Placerville: II.18.29, (L, M).

VARIATION

COLOR. Fresh specimens are predominantly sordid creamy yellow either entirely or throughout the segments comprising approximately the anterior two-thirds of the body. When the latter part of the body is dark brownish or grayish, it appears to have been discolored from within, perhaps by bacterial or other deteriorative agents.

PEDAL COUNTS. The chart reveals a rather wide range of pedal count dispersion for each sex: ♀ 39 and ♂ 43, i.e., ♀ 127–165, ♂ 127–169. Although a distinct statistical structure is not apparent from such limited data, they do at least suggest the possibility, first, that each locality may have a characteristic modal class and range; secondly, that there may be an inverse relationship between modal class and geographic elevation. That is, the lower modes may tend to be more typical of higher elevations and vice versa, e.g., Placerville at 1,875′ = 127 legpairs, Ione at 285′ = 143 legpairs, Folsom Lake State Park at 200′ or less = 165–169 legpairs.

Finally, although the pedal count range of the entire sample is quite large, in any one locality it is appreciably smaller. I suggest that the latitude in range has two concurrent explanations. (1) It is in accord with the general rule: the higher the modal class, or the higher the upper range limit, the greater the range. (2) Whatever the nature of the causal factor or factors, range and especially mode are probably ecophenotypic in expression.

ANTENNAL SHAPE. It is difficult to know how and to what degree emersion in alcohol has distorted antennal configuration, if indeed it has done so. In this series the more proximal

articles are either round in cross-section or else very slightly, barely perceptibly flattened. In some specimens the distal segments as a group seem not at all attenuate; in others the degree of attenuation is very slight.

LABRUM. In all but the smallest, hence usually the youngest, specimens there are four good-sized well-pigmented central teeth. In, for instance (K), a male which I judge to be young, there are but two distinct central teeth. In all, the total dentition varies from 3 + 3 to about 7 + 7. In every case the teeth occur only on the embayed margin and, excluding the central teeth, are smaller, sometimes minute, and sharply pointed.

LAPPETS OF FIRST MAXILLARY TELOPODITES. Lappets were found to be (a) totally absent or (b) present but small (as in

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EXPLANATION OF FIGURES

Figs. 7, 8, and 12, male plesiotype; all others, female plesiotype.

FIG. 1. Right prehensor and prosternum. Ventral; setae deleted. Poison calyx and its gland shown in dashed outline.

FIG. 2. 45th sternite and right pro- and metacoxae. Setae deleted. Parasternital fossa shown in cross-hatch. Subreniform ventral porefield shown in solid outline.

FIG. 3. 10th sternite and right pro- and metacoxae. Setae deleted. Reniform ventral porefield shown in solid outline.

FIG. 4. 1st and 2nd maxillae. Left side; all setae shown. Membranous areas stippled. a = weakly sclerotized part of coxosternum. b = more strongly sclerotized part of coxosternum. c = tiny postmaxillary sclerite.

FIG. 5. Rear end of body. Dorsal; all setae deleted. a = tergum of postpedal segments. b = ultimate pedal tergite. c = ultimate pedal pretergite. d = penultimate pedal tergite. e = laterally lying spiracle shown in dashed outline, its stigmopleurite fused with penultimate pedal tergite. f = concealed porigerous trench or fossa shown in horizontal dashes. g = partly exposed rear portion of porigerous fossa.

FIG. 6. Right pleural area of 10th segment. Setae deleted. a = stigmopleurite. b = major tergite. c = major paratergite. d = pretergite. e = intercalary paratergites. f = intercalary pleurite.

FIG. 7. 1st maxillary left medial lobe and telopodite (male plesiotype). Arrow indicates telopodite lappet.

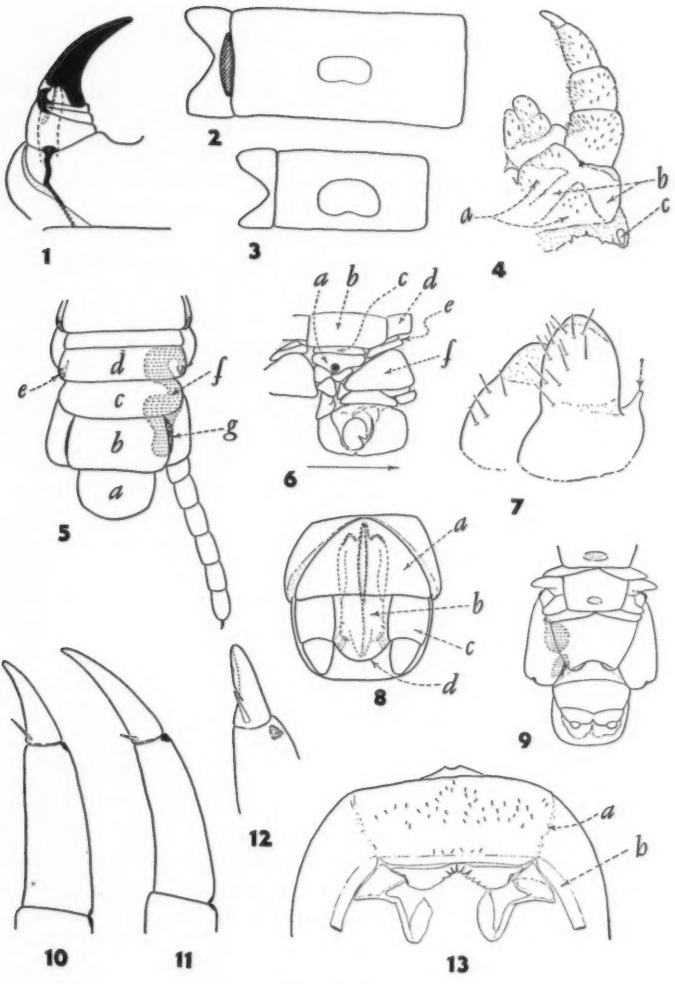
FIG. 8. Postpedal segments (male plesiotype). Ventral; setae deleted. a = genital sternite. b = in dashed outline, the male intromittent apparatus, or aedoeagus. c = left gonopod. d = rear margin of "penis sac."

FIG. 10. Tarsus and pretarsus of 3rd leg. Lateral; setae deleted.

FIG. 11. Tarsus and pretarsus of penult leg. Lateral; setae deleted.

FIG. 12. 2nd maxillary terminal claw (male plesiotype). Ventral; setae deleted.

FIG. 13. Clypeus, buccae, and labrum with labral fulturae. Ventral; all setae shown. a = left paraclypeal suture. b = strongly sclerotized inner border of left bucca.



FIGS. 1–13.

my figure and in that of Selivanov) or (c) present and rudimentary. Their variant condition is believed to be a reflection only of individual variability. The chart will show that the character is apparently not a function of sexual dimorphism, of ecophenotypy, or of a species difference. That it is highly variable is particularly suggested by specimens (H) and (K).

Major Paratergites. The anterior limit of their series is evidently not dependent upon body length or pedal count, for in all specimens the major paratergites are first visible on some pedal segment between the 50th and 60th; in no specimen are they visible anterior to approximately the 50th.

Parasternital Clefts. These clefts occur as a consecutive series of about 10 to 25 on the more anterior part of the body, beginning approximately between pedal segments 35 and 60. The clefts in the middle of each series are quite distinctive, being rounded at each end and quite wide in the middle. The more anterior and posterior clefts of each series are less distinctive, so that judging precisely where the series limits are is often quite difficult and even subjective to some extent.

Last Stigmopleurite. The chart shows that in nearly all of the specimens the last stigmopleurite of each side is completely fused with the tergite, but also that in one specimen (L) both final stigmopleurites are entirely free of their tergite. Since in some geophilomorphs such a difference would indicate an interspecific or even intergeneric difference, by extension specimen (L) might justifiably be suspected of representing a different species. This, however, is weakened by two factors. First, specimen (I) has one fused and one discrete stigmopleurite. Secondly, in all other respects specimen (L) agrees very closely with the other specimens of the series.

Coxopleural Pores. In most of the specimens the pores are entirely or very largely concealed by the sternite and various dorsal plates, but in a few one or more of the pits and fossae are expanded to expose many or all of the generally cryptic pores. This is apparently no more than individual variability, for it is common to find pores exposed on one side but not on the other.

Nothobius Cook

Summary of Diagnostic Features. Antennae basally very slightly or not at all flattened; distally slightly or not at all attenuate. Labrum deeply embayed. First maxillae: coxosternum medially nearly divided into two halves; telopodite lappets present or absent. Second maxillae: isthmus deeply incised but not divided or suturate; telopodite claw spoon-shaped, edges not pectinate; basal spurs present. Tergites not sulcate; penult tergite fused with or separated from its stigmopleurites. Major paratergites present on approximately the rear two-thirds of the body; intercalary paratergites present on most segments. Sternites: porefields present, undivided, their series unbroken. Ultimate pedal segment: coxopleural pores normally concealed in ventral and dorsal pits or grooves, never freely dispersed over lateral coxopleuron; ultimate leg with two tarsal articles and an unguiform pretarsus. Postpedal segments: male and female gonopods biarticulate; terminal pores absent.

Type species: *Nothobius californicus* Cook, 1899. (Monotypic and original designation.)

Nothobius californicus Cook, 1899

? *Strigamia taeniopsis* Wood, Journ. Acad. Nat. Sci. Phila., (2)5, p. 48, (1862). [*Species inquirenda.*]

Chomatobius mexicanus [*sensu* Selivanov *nec* Saussure], Imp. Akad. Nauk, St. Petersburg, 40(7), p. 24, (1881).

Nothobius californicus Cook, Proc. Ent. Soc. Wash., 4, p. 303, (1889).

? *Haplophilus taeniopsis* (Wood),—Chamberlin, Ann. Ent. Soc. Amer., 2(3), p. 177, (1909).

Notobius taeniopsis (Wood),—Chamberlin, Pomona Journ. Ent., 4(1), p. 669, (1912). [*Lapsus calami pro Nothobius.*]

Nothobius californicus Cook,—Attems, Das Tierreich, Lief. 52, p. 55, (1929). [As *genus incertum* and *nomen nudum.*]

The following *composite characterization* is based upon the original description, upon the Chamberlin description of 1912, and upon the Smith and Schuster specimens. Characters described in the preceding generic summary are not repeated

unless they are believed to have possible intrageneric significance.

Length: ♂ to 80 mm., ♀ to 155 mm. Legpairs: ♂ 119–169, ♀ 127–165. Antennae: weakly or not flattened proximally; no articles but the first wider than long. Cephalic plate: anteriorly rostrate and laterally excurved; wider than long; without sulci or frontal suture. Clypeus: paraclypeal sutures weak and complete; without clypeal area or plagulae; posterior margin strongly sclerotized and pigmented. Labrum deeply embayed and nearly divided; central four teeth normally largest and darkest. Mandible: dentate lamella with 7–9 strong teeth; with 5–9 pectinate lamellae. First maxillae: without setae or lappets on coxosternum; telopodite indistinctly biarticulate, lappets absent, present, or rudimentary. Second maxillae: postmaxillary sclerites elongate, small, well-separated from coxosternum; telopodite claw distally spoon-shaped, its edges not pectinate or serrulate,* with two basal spurs. Prosternum: with heavy sclerotic lines reaching condyles. Prehensors: when closed, not reaching beyond front of head; articles without denticles; poison gland passing into prosternal segment. Pleurites: major paratergites present and beginning anteriorly on segments 40–60, thereafter continuing nearly to the end of the body; spiracles all circular; stigmopleurites through the next-to-last all discrete, the last usually fused with but occasionally separated from the tergite. Legs: pretarsal accessory claws not exceeding $\frac{1}{3}$ to $\frac{1}{2}$ the length of the major claw; rear pretarsal major claws extraordinarily long and broad. Sternites: porefields on sternite 2 through the penult in an unbroken series, each porefield undivided and transversely subelliptical to reniform; certain sternites flanked by parasternital clefts, these appearing on some segments between about the 35th and the 60th; each sternite wider than long; typical sulci absent. Ultimated pedal segment: pretergite fused with pleurites, not laterosuturate. Tergite transversely rectangular, much wider than long, rear margin

* Selivanov's figure of the maxillary claw shows a prominently dissected edge, but this is almost surely an artifact. At low magnification sclerotic thickened ridges can give this impression, and in some specimens it is apparent that the claw edge has been chipped and worn with age.

truncate; sternite much broader than long, sides convergent, rear margin deeply embayed, ventral surface shallowly sulcate; each coxopleuron extending far forward of its body segment, ventrally with two groups of clustered pores which open into two cavities that are wholly or largely concealed, dorsally with a sinuous trench of largely or entirely hidden and clustered pores, the trench extending well forward of the ultimate pedal segment. Postpedal segments: male and female gonopods biarticulate.

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Selivanov, A. 1881. Imp. Akad. Nauk St. Petersburg 40(7), pp. 1-27. [Full transliterated title of the article is: "Geophilidae Muzeia Imperatorskoi Akademii Nauk."]

Wood, H. C. 1862. Journ. Acad. Nat. Sci. Phila. (2)5, pp. 5–52.

Heleocoris faradjensis, a New Species from the Belgian Congo (Hemiptera: Naucoridae)

By Ira La Rivers, University of Nevada, Reno

Subfamily Laccocorinae (Stål) 1876

Genus **Heleocoris** Stål 1876
(type *obliquata* (Spin.) 1837)

Heleocoris Stål, 1876. Kongl. Svenska Vet. Akad. Handl. 14: 142.

Heleocoris, Montandon, 1897. Verh. zool.-bot. Ges. Wien 47: 445–454. 1909: Soc. Sci. Buc.-Roum. Bull. 18: 52–55.

Heleocoris, Kirkaldy, 1906. Trans. Amer. Ent. Soc. 32: 150.

Heleocoris, Kirkaldy and Torre-Bueno, 1908. Proc. Ent. Soc. Wash. 10: 184.

Heleocoris, Usinger, 1935. Revista de Ent. 5: 133–136.

Heleocoris, De Carlo, 1940. Rev. Soc. Ent. Arg. 10: 432–433.

Heleocoris faradjensis new species

General Appearance: A medium-sized species, dark in color, usually blackish. Size 7.0–9.0 mm. long and 5.0–6.0 mm. wide. Dorsum lighter over head and prothorax, dark-to-black on hemelytra, with embolia the only light area of hemelytra. Scutellum usually blacker than hemelytra. Venter blackish-brown except for golden pelage; legs yellowish-brown.

Head: Sparsely punctate, shiny, rather flat; vertex slightly and roundly protuberant anteriad of eyes. Eyes essentially flush with head surface; outer and posterior eye margins forming a smooth but slightly sharp curve at their meeting points; inner eye margin generally shallowly sinuate, often with some angulations; meeting of inner and posterior eye margins angulate. Labrum small, bluntly-pointed at tip; ratio of length-to-width 10::15 (67%), uniform in color. Head ratios are:

(1) Total length-to-width (including eyes) 30::67 (45%)
(2) Anterior distance between eyes to posterior distance 25::38 (66%)
(3) Anterior distance between eyes to inner eye length 25::25
(4) Posterior distance between eyes to greatest length of head posterior to this line 38::2 (5%).

Antennae short, 3-segmented (not counting basal scape), middle segment widest and longest of the three.

Pronotum: Finely punctate, shiny, with slight semi-lunar rugulosities in area behind central part of head, this anterior section of pronotum straight and not indented to receive head as in *Ambrysus;* background color light yellow around edges with some suffusion into central disk, which is mainly variegated brownish with some irregular black dotting; posterior border straight, brownish, with yellow strip cephalad; lateral edges smooth, non-pilose, very weakly curved, curvature more pronounced posteriorly at postero-lateral angles—percent of curvature (viewed perpendicular to the frontal plane of section of the pronotum as a whole) about 9% (av. 57::5); venter laterally smooth, deep yellow-brown, this area penetrating maximumly in its central portion; rest of venter blackish, clothed densely with

fine, yellow hairs; ventral keel prominent, sharp and short, disappearing abruptly between bases of procoxae, becoming progressively lower caudad.

Keel not divided into anterior ridge with flatly-sloping posterior surface as in *Ambrysus,* but all one sloping sharp ridge; prosternum fused to propleura. Pronotal ratios are:

(1) Width between anterior angles to width between posterior angles 94::135 (70%)
(2) Median length to greatest width 60::135 (44%)
(3) Distance between anterior and posterior angles on same side to perpendicular distance between anterior angle and baseline of pronotum 56::60 (93%).

Scutellum: Jet black overall, with some dull shine, shagreened with fine, dense punctulation, each puncture the seat of a white dot; ratio of three sides, anterior and two laterals, 100::75::74.

Hemelytra: Background color black with deep reddish tints —yellow color confined to embolia; somewhat shiny, shagreened as is scutellum; embolia well defined at their posterior margins, narrow, length-to-width 90::20 (22%); emboliar crease moderately developed, noticeable for about three-fifths of emboliar length—embolium characteristically bicolored, yellowish in anterior three-fifths, darker over remainder.

Hemelytra variable, reaching-to-not quite reaching, abdominal tip, and not nocticeably-to-noticeably exposing lateral connexival angles. Hindwings functional, but variable in length, from reaching abdominal tip to being distinctly shorter than abdomen; hindwings with two "costal" cells.

Venter: The prothoracic venter has been discussed above. All connexival margins rounded at corners and non-spinose; connexival edges smooth, non-serrate. Tip of female subgenital plate feebly quadrisinuate in outline, seemingly not distinctive. In this genus, the male lacks the genital process so valuable as a taxonomic character in *Ambrysus.* Surface densely set with golden hydrofuge hairs, thickest and longest on central keel.

Legs: Prolegs—coxae large, massive, roughly ovate, flattened postero-laterally to receive basal part of femur and densely

furred with golden pile; femur large, moderately incrassate but without the full development of such genera as *Ambrysus* and *Pelocoris,* attached to coxae by prominent trochanter, which is affixed to femur along its inner oblique margin and not at its end; ratio of femur length-to-width 60::25 (42%); tibia slim, tubular, much shorter than femur, with dense brush of fine hairs near apical inner end which combines with a similar brush beneath tarsus; tarsus 2-segmented, first segment slightly shorter than the second, which latter bears the two prominent terminal claws; entire structure of the proleg is more primitive than in the two genera mentioned above.

Mesolegs—coxa large, globose, attaching to a large trochanter which in turn bears the flattened, broad, conspicuous femur; unlike the slim tibia, the powerful femur is somewhat comparable to that of the prolegs; femur broadest at base, ratio of length-to-width 62::22 (35%)—length 2.0 mm.; femur with several lines of golden hairs running the length of femur, which is essentially non-spinose; tibia short, stubby, widest at apical end, with numerous large, strong, reddish spines, particularly on outer face; male tibia with conspicuous spine cluster and hair brush on postero-apical area—ratio of length-to-width 45::12 (27%)—length 1.4 mm.; tarsus 3-segmented, the first segment tiny and inconspicuous, other 2 segments long, narrow, subequal in length, terminating in 2 large claws.

Metalegs—coxa similar to that of mesoleg, but longer; trochanter and femur similar also, but larger; femoral ratio of length-to-width 73::28 (38%)—length 2.2 mm.; tibia long, tubular, with many conspicuous large reddish spines, length-to-width ratio 83::10 (12%)—length 2.5 mm.; tarsus larger copy of mesotarsus except for more spination.

Type Locality Data: AFRICA—Northeastern Belgian Congo (Faradje, 29°40′E, 3°40′N, January 1913, Herbert Lang and James P. Chapin).

Distribution: Known at present only from 4 specimens from the Belgian Congo—the type locality and Vankerckhovenville (29°30′E, 3°20′N, 15 April 1910, Herbert Lang and James P. Chapin).

Location of Types: Holotypic male and allotype from Faradje, and a paratype from Vankerckhovenville, in the collections of the American Museum of Natural History, New York; one paratype from Faradje in the author's collection, Reno, Nevada.

Comparative Note: The only species of *Heleocoris* with which *H. faradjensis* need be compared is *H. minusculus* Walker which occurs, as far as now known, to the north and east. This small species, which does not exceed 4.5 mm. in length, is light in general coloration and specimens the author has seen from the British Museum [1] all bear labels from the Yemen and West Aden areas. Differences in size alone would adequately separate the two species with presently known material.

The following distributional records have also been seen in American Museum of Natural History material.

Subfamily NAUCORINAE (Stål) 1876

Macrocoris flavicollis Signoret 1861

Faradje (January 1913, Lang and Chapin). A medium-sized species.

Macrocoris nigropunctatus Montandon 1909

Faradje (January 1913, Lang and Chapin) and Vankerckhovenville (15 April 1910, Lang and Chapin). A large, robust species.

[1] Dr. R. J. Izzard was kind enough to loan British Museum specimens for comparison.

Change of Generic Name in Tachinidae (Diptera)

A new name, **ANZAMYIA**, is proposed to replace **Agathomyia** Reinhard, Ent. News, 70: 228, 1959, preoccupied in Platypezidae by Verrall British Flies, 8: 30, 1901. I am indebted to Curtis W. Sabrosky for calling my attention to this homonymy.

—H. J. REINHARD

Laelius utilis Cockerell (Hymenoptera: Bethylidae) Stinging a Child at London, Ontario

By W. W. JUDD, Department of Zoology, University of Western Ontario, London, Ontario

On the evening of October 26, 1959, a boy eleven years old was stung on the calf of his left leg in the bathroom of a house in London, Ontario. The sting produced a white welt about one-half inch in diameter on the skin. No puncture was evident and no bleeding occurred. The stinging sensation lasted about one-half hour and the affected skin was treated with calamine lotion.

When the insect which caused the sting was examined its stinging apparatus was found to be fully projected from the abdomen. The wasp was identified as a female bethylid wasp, *Laelius utilis* Cockerell, by H. E. Evans, Cornell University. The specimen, preserved in fluid, is deposited in the collection of the Department of Zoology, University of Western Ontario.

Bethylid wasps of the genera *Cephalonomia* and *Scleroderma* have frequently been reported as stinging man (Muesebeck *et al.*, 1951). Various species of *Laelius* have been recorded as parasitizing buffalo-bugs and grain beetles of the genera *Anthrenus* and *Trogoderma;* and *Laelius utilis* is recorded as a parasite of *Trogoderma versicolor* (Dermestidae) and possibly of *Bruchus brachialis* (Bruchidae), both household pests (Krombein, 1958; Muesebeck *et al.*, 1951). It is thus likely that the wasp which stung the boy at London had emerged from its host in the house. Cockerell (1920) described *Laelius utilis* from specimens found on a dragonfly infested with dermestid larvae in an insect collection.

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MUESEBECK, C. F. W., K. V. KROMBEIN, H. K. TOWNES, *et al.* 1951. Hymenoptera of America north of Mexico—synoptic catalog. U. S. Dept. Agric., Agric. Monogr. No. 2.

Notes on a Few Mexican Scarabaeidae (Coleoptera)

By MARK ROBINSON
Research Associate, Department of Insects,
The Academy of Natural Sciences of Philadelphia

The insects mentioned below have been deposited in the author's collection.

Ateuchus texanus (Robinson)
1948. *Choeridium texanus* Robinson, Trans. Amer. Ent. Soc. 74: 38.

Definite localities mentioned in the original description of this species include only Brownsville and Flatonia in Texas.

On July 1, 1958 under some decaying vegetable matter the writer collected a female of this species 16 kilometers north of Ciudad Victoria, Tamaulipas. Thus another insect has been added to the Mexican fauna as well as extending the range of texanus about 300 kilometers to the south.

The above specimen has been compared with the allotype of the species and agrees with all of the essential characteristics.

Anomala insitiva Robinson
1938. *Anomala insitiva* Robinson, Trans. Amer. Ent. Soc. 64: 112.

This species was described from Brownsville and Edinburg, Texas, and up until now, to the writer's knowledge, has only been collected in the vicinity of Brownsville.

On June 22, 1959, Nelson D. Hoy collected a female at light in Taninul, San Luis Potosi. This adds another species of Scarabaeidae to the growing list of Mexican insects and extends the range of this species about 500 kilometers southward.

The Taninul specimen has been compared to the type series in the author's collection and agrees in all details with these specimens.

Bothynus selanderi Cartwright

1959. *Bothynus selanderi* Cartwright, Proc. U. S. Nat. Mus. 108: 537.

Cartwright's type series were collected in Arizona, Sonora and Sinaloa; the southernmost recorded, being from Mazatlan in Sinaloa.

On June 18, 1959, Nelson D. Hoy collected two male specimens of this species at light in Acapulco, Guerrero. This extends the range of this insect over 1000 kilometers to the southeast.

The aedeagi of the Acapulco specimens agree very well with the figures published by Cartwright while the external characters fit the description exactly with one exception. The smaller of the two specimens is reddish brown in color instead of piceous.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

Tenth Pacific Science Congress. The executive committee has issued a preliminary announcement of the Tenth Congress, to be held at the University of Hawaii, Honolulu, from the 21st of August to the 6th of September 1961. It is sponsored by the National Academy of Sciences, Washington, D. C., and the Bernice P. Bishop Museum, with the cooperation of the University of Hawaii.

The program is being organized under nine sections with a total of 22 divisions. Section II (Biological Sciences) includes a Division of Zoology and Entomology, as well as divisions of marine biology, limnology and botany. Entomological matters will also, no doubt, appear under the Sections on public health, on agriculture, and on forestry. There will also be a limited number of special symposia of broad, general interest.

The Congress Circular of Information will be issued in August 1960. Please address inquiries to: Secretary-General,

Tenth Pacific Science Congress, Bishop Museum, Honolulu 17, Hawaii, U.S.A. From this address the inquiry will be forwarded to the person concerned.

Pest Control, A. D. 1120. The following, said to have appeared in the Manchester Guardian and quoted in Living Age, July 19, 1924, was contributed by one of our members, Mr. Arthur B. Wells, of Bryn Athyn, Pa.

"In 1120 the Bishop of Laon pronounced a solemn sentence of excommunication against caterpillars and grasshoppers in his diocese, and as late as 1516 an admonition was issued by another bishop declaring: 'We grant the request of the inhabitants of Villenoce, and warn the caterpillars to retire within six days, in default of which we declare them accursed and excommunicated.' With a commendable sense of justice an advocate was sometimes appointed to plead the cause of the insects against that of the farmers before judgment was delivered."

We are unable to place these instances under any of the usual types of insect control; they would have to be called 'theological control.' It was especially thoughtful of the good bishop to allow the caterpillars six days to complete their feeding before retiring.

Lady Bugs. Again the little two-spotted coccinellid has appeared inside windows of houses early in February, and I have been asked, among other things, why they are called "lady bugs." Few realize that the "lady" refers to Our Lady, the Virgin Mary. My Comstock failed me in this instance, and I consulted Roesel von Rosenhof's Insecten Belustigungen, A. D. 1746–55, and learned that these best beloved of insects were as well liked then as now, especially among children, and that in both Germany and France they were known as "Mary's beetles," and as "God's little cows," and "God's little sheep," Roesel believes the name was given because they first appear at the time of the Feast of the Purification of the Virgin Mary, on February 2nd.—R. G. S.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Agapema galbina. Will exchange cocoons of this moth for nature books. E. Frizzell, Route 4, Box 96, San Benito, Texas.

Tenebrionidae of the World wanted, in exchange for insects of Argentina and neighboring countries. Horacio J. Molinari, Av. Lib. Gral. San Martin 55, Acassuso (Buenos Aires), Rep. Argentina.

Butterflies. Wish to exchange specimens for Japanese species. Please write to Ichiro Nakamura (Boy, age 16), 26 Aza-Nichiyama Obayashi Takarazuka-shi, Hyogo-Ken, Japan.

Phasmidae of nearctic area desired alive. Purchase or trade, drawing on large stock of major orders, worldwide. Domminck J. Pirone, Dept. Entomology, Cornell University, Ithaca, N. Y.

Nitidulidae and Rhizophagidae wanted in exchange for European beetles of all families. O. Marek, Zămberk 797, Czechoslovakia.

Wanted and Needed. We are compiling a history of entomology, and particularly, at present, of the amateur insect clubs that flourished 50 to 75 years ago. Will you who have knowledge of such early clubs or societies advise me, giving facts on the time of existence, members, etc., which you may have. J. J. Davis, Dept. of Entomology, Purdue University, Lafayette, Indiana.

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A TAXONOMIC STUDY OF THE NORTH AMERICAN LICININI WITH NOTES ON THE OLD WORLD SPECIES OF THE GENUS DIPLOCHEILA BRULLE (COLEOPTERA)

By George E. Ball

258 pages of text, 75 tables, 3 diagrams,
15 plates, table of contents and index

This monograph considers the geographical variation, relationships, evolution and taxonomy of the carabid tribe Licinini. A general treatment, explaining the taxonomic approach used, definition of terms, criteria for delimiting species and subspecies, etc., precedes the systematic position. The genera *Diplocheila* (subgenera *Diplocheila, Neorembus, Isorembus*), *Dicaelus* (subgenera *Paradicaelus, Dicaelus, Liodicaelus*) and *Badister* (subgenera *Badister, Trimorphus, Baudia*) are each treated in some detail. Keys to the genera and species are given throughout as well as a description (or diagnostic notes), variation, distribution and frequently locality records for each of the forms treated. The phylogeny and zoogeography of each genus are discussed in a separate section. Variation of mensurable characters is treated in the 75 tables. Fifteen plates depict structural (including genitalia) and variational features of the species discussed.

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